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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,345	01/03/2006	Neil Killoran	469.1119	3924
21171	7590	08/01/2006	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			VAUGHN, MEGANN E	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/532,345	<b>Applicant(s)</b> KILLORAN ET AL.	
	<b>Examiner</b> Megann E. Vaughn	<b>Art Unit</b> 2859	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7 and 9-16 is/are rejected.
- 7) ☒ Claim(s) 6 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/22/2005 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/22/2005</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Examiner requests that headings, i.e. Background of the Invention, Brief Summary of the Invention, Brief Description of the Drawings, and Detailed Description of the Invention be included in the Specification.

***Claim Objections***

2. Claim 6 is objected to because of the following informalities:

Claim 6 should read, "Apparatus according to claim 5, wherein the sample positioning mechanisms are insertable into opposite ends of **the** common bore." Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Young (US 4644275).

Regarding claim 1, Young discloses in figure 1, a sample inspection apparatus comprising,

a pair of magnet assemblies (2, 35) located in a common cryostat (2, column 2, line 1) and surrounding respective bores so as to define corresponding working regions (1, 33) in the bores;

a first sample positioning mechanism (column 2, lines 12-14) insertable in one of the bores to bring a sample into the corresponding working region (1), the magnetic field in that working region having a homogeneity or profile suitable for performing a NMR experiment (column 1, lines 41-51); and

a second sample positioning mechanism (column 2, lines 35-39) insertable in the other of the bores to bring a sample into the other working region (33), the magnetic field in that working region having a homogeneity or profile suitable for performing a different experiment on the sample (column 1, lines 41-51).

Regarding claims 5 and 7, Young discloses in figure 1 that the magnet assemblies are arranged with their bores coaxial (column 2, lines 35-39) to define a common bore.

Regarding claim 9, Young discloses that the magnet assemblies are controllable to generate the required magnetic fields (column 4, claim 6) in each working region simultaneously (column 3, lines 6-15).

5. Claims 11, 12, 14, and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by Raftery et al (US 2002/0130661).

Regarding claim 11, Raftery et al discloses in figures 1 and 2 a sample inspection apparatus comprising: a magnet assembly (16) located in a cryostat and surrounding a bore (15) so as to define a working region in the bore (50);

a first sample positioning mechanism (30a) insertable in the bore to bring a sample into the working region, the magnet assembly being controllable to generate a magnetic field in the working region having a homogeneity or profile suitable for performing a NMR experiment (page 1, [0005]); and

a second sample positioning mechanism (40a) insertable in the bore to bring a sample into the working region, the magnet assembly being controllable to generate a magnetic field in the working region having a homogeneity or profile suitable for performing a different experiment on the sample (page 1, [0005]).

Regarding claim 12, Raftery et al discloses in figure 8 that the sample positioning mechanisms are insertable into opposite ends (136a, 136b) of the bore (page 5, [0066]).

Regarding claim 14, Raftery et al discloses in figure 8, a system (122) for supplying portions of a sample to each sample positioning mechanism (132a, 132b, 132c, 132d) from a common source (page 5, [0066]).

Regarding claim 15, Raftery et al discloses that the common source comprises a liquid chromatograph (page 5, [0066]).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Young (US 4644275).

Young discloses the sample inspection apparatus as stated above in paragraph 4, and further discloses that it is important to take in account the affect that each magnetic field of both magnet systems have on each other when designing the apparatus. Young does not discloses specifically that the external field generated by each magnet assembly is no greater than 0.0005T at the center of the working region defined by the other magnet assembly. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to design the two magnet systems to have external fields no greater than 0.0005T at the center of the working region of the other magnet system, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Magnetic fields less than or equal to 0.0005T are optimal because small magnetic fields ensure that the external magnetic field of the neighboring magnet system won't effect the results in the other magnet system. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

8. Claims 3, 4, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young (US 4644275) in view of Kasten (US 6727699).

Regarding claims 3, 4, and 10, Young discloses the sample inspection apparatus as stated above in paragraph 4. Young does not disclose that the magnet assembly includes a room temperature bore and that is actively shielded.

Kasten discloses in figure 1, a superconducting magnet system for use in a NMR spectrometer wherein the magnet system (4) comprises a substantially cylindrical cryostat with an axial room temperature bore (column 1, lines 8-11) that is actively shielded with active end shielding coils (4a, 4b). Therefore it would have been obvious to a person having ordinary skill in the art at the time that the invention was made to actively shield the magnet systems disclosed by Young, as well as to ensure that the bores are kept at a room temperature bore, both as taught by Kasten, in order to provide an extremely stable magnetic field resulting in higher resolution NMR data, as taught by Kasten. Also, if the subject or patient being examined is alive, a room temperature bore provides increased comfort to the subject resulting in quicker data acquisition.

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raftery et al (US 2002/0130661) in view of Roth et al (US 5739689).

Regarding claim 13, Raftery discloses the sample inspection apparatus as stated above in paragraph 5. Raftery et al does not disclose specifically that the bore is at room temperature.

Roth et al discloses in figure 1, a superconducting NMR magnet comprising a vertical room temperature bore (3, Abstract).



Therefore it would have been obvious to a person having ordinary skill in the art at the time that the invention was made to ensure that the bore disclosed by Raftery is at room temperature as taught by Roth et al since it is well known in the art that room temperature bores are desirable so that the subject being tested stays at a constant temperature to insure more accurate data acquisition, i.e. important properties being measured don't change due to varying temperatures, or if the subject is living, a room temperature bore provides increased comfort, which leads to quicker data acquisition.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Young (US 4644275) in view of Schittenhelm et al (US 5267445).

Regarding claim 16, Young discloses the sample inspection apparatus as stated above in paragraph 4; he also discloses that the cryogenic magnet systems can be used for different imaging techniques (column 3, lines 22-25). Young does not disclose that the apparatus is suitable for use in ion cyclotron resonance mass spectroscopy.

Schittenhelm et al discloses a cryomagnet system for use in NMR experiment, specifically ion cyclotron resonance experiments (column 1, 8-17). Therefore it would have been obvious to a person having ordinary skill in the art at the time that the invention was made to replace the cooling means disclosed by Young with a low-loss helium cryostat in combination with the second cryogenic magnet system disclosed by Young to perform ion cyclotron resonance mass spectroscopy, also well known in the art as Fourier transform mass spectroscopy, as taught by Schittenhelm et al (column 4,

lines 6-17), in order to provide a very high resolution technique with high accuracy to the given sample.

***Allowable Subject Matter***

11. Claims 6 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 6 is allowable over the prior art of record because the prior art of record does not teach or disclose a sample inspection apparatus comprising a pair of magnet assemblies located in a common cryostat, wherein the sample positioning mechanisms are insertable into opposite ends of the common bore, in combination with the remaining limitations of the claims.

Claim 8 is allowable over the prior art of record because the prior art of record does not teach or disclose a sample inspection apparatus comprising a pair of magnet assemblies located in a common cryostat, wherein the magnet assemblies are arranged with their bores substantially parallel and side-by-side, in combination with the remaining limitations of the claims.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Roth et al (US 5739689) discloses a superconducting NMD magnet with multiple room temperature bores, and Okada et al (US 7026817) discloses a NMR spectrometer wherein the magnetic bore axis can run horizontally or vertically.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Megann E. Vaughn whose telephone number is 571-272-8927. The examiner can normally be reached on 8 am- 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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